

What is claimed is:

1. An isolated nucleic acid molecule comprising a polynucleotide having a
5 sequence at least 95% identical to a sequence selected from the group consisting of:

(a) a nucleotide sequence encoding a human sel-10 polypeptide
having the complete amino acid sequence selected from the group consisting of SEQ
ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7, or as
encoded by the cDNA clone contained in ATCC Deposit No.98978;

10 (b) a nucleotide sequence encoding a human sel-10 polypeptide
having the complete amino acid sequence selected from the group consisting of SEQ
ID NO:8, SEQ ID NO:9, and SEQ ID NO:10, or as encoded by the cDNA clone
contained in ATCC Deposit No. 98979; and

(c) a nucleotide sequence complementary to the nucleotide
15 sequence of (a) or (b).

2. An isolated nucleic acid molecule comprising polynucleotide which
hybridizes under stringent conditions to a polynucleotide having the nucleotide
sequence in (a), (b), or (c) of claim 1.

20 3. The nucleic acid molecule of claim 1, wherein said polynucleotide of
1(a) encodes a human sel-10 polypeptide having the complete amino acid sequence of
SEQ ID NO:3.

25 4. The nucleic acid molecule of claim 3, wherein said polynucleotide
molecule of 1(a) comprises the nucleotide sequence of residues 45-1928 of SEQ ID
NO:1.

30 5. The nucleic acid molecule of claim 1, wherein said polynucleotide of
1(a) encodes a human sel-10 polypeptide having the complete amino acid sequence of
SEQ ID NO:4.

6. The nucleic acid molecule of claim 5, wherein said polynucleotide molecule of 1(a) comprises the nucleotide sequence of residues 150-1928 of SEQ ID NO:1.

5 7. The nucleic acid molecule of claim 1, wherein said polynucleotide of 1(a) encodes a human sel-10 polypeptide having the complete amino acid sequence of SEQ ID NO:5.

8. The nucleic acid molecule of claim 7, wherein said polynucleotide molecule of 1(a) comprises the nucleotide sequence of residues 267-1928 of SEQ ID NO:1.

9. The nucleic acid molecule of claim 1, wherein said polynucleotide of 1(a) encodes a human sel-10 polypeptide having the complete amino acid sequence of SEQ ID NO:6.

10 10. The nucleic acid molecule of claim 9, wherein said polynucleotide molecule of 1(a) comprises the nucleotide sequence of residues 291-1928 of SEQ ID NO:1.

11. The nucleic acid molecule of claim 1, wherein said polynucleotide of 1(a) encodes a human sel-10 polypeptide having the complete amino acid sequence of SEQ ID NO:7.

12. The nucleic acid molecule of claim 11, wherein said polynucleotide molecule of 1(a) comprises the nucleotide sequence of residues 306-1928 of SEQ ID NO:1.

13. The nucleic acid molecule of claim 1, wherein said polynucleotide of 1(b) encodes a human sel-10 polypeptide having the complete amino acid sequence of SEQ ID NO:8.

14. The nucleic acid molecule of claim 13 wherein said polynucleotide molecule of 1(b) comprises the nucleotide sequence of residues 180-1949 of SEQ ID NO:2.

5 15. The nucleic acid molecule of claim 1, wherein said polynucleotide of 1(b) encodes a human sel-10 polypeptide having the complete amino acid sequence of SEQ ID NO:9.

10 16. The nucleic acid molecule of claim 15, wherein said polynucleotide molecule of 1(b) comprises the nucleotide sequence of residues 270-1949 of SEQ ID NO:2.

15 17. The nucleic acid molecule of claim 1, wherein said polynucleotide of 1(b) encodes a human sel-10 polypeptide having the complete amino acid sequence of SEQ ID NO:10.

20 18. The nucleic acid molecule of claim 17, wherein said polynucleotide molecule of 1(b) comprises the nucleotide sequence of residues 327-1949 of SEQ ID NO:2.

19. A vector comprising the nucleic acid molecule of claim 1.

25 20. The vector of claim 19, wherein said nucleic acid molecule of claim 1 is operably linked to a promoter for the expression of a sel-10 polypeptide.

21. A host cell comprising the vector of claim 19.

22. The host cell of claim 21, wherein said host is a eukaryotic host.

30 23. A method of obtaining a sel-10 polypeptide comprising culturing the host cell of claim 22 and isolating said sel-10 polypeptide.

24. An isolated sel-10 polypeptide comprising

(a) an amino acid sequence selected from the group consisting of SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, and SEQ ID NO:7, or as encoded by the cDNA clone contained in ATCC Deposit No. 98978;

(b) an amino acid sequence selected from the group consisting of SEQ ID NO:8, SEQ ID NO:9, and SEQ ID NO:10, or as encoded by the cDNA clone contained in ATCC Deposit No. 98979.

25. The isolated sel-10 polypeptide of claim 24, wherein said polypeptide comprises the amino acid sequence of SEQ ID NO:3.

26. The isolated sel-10 polypeptide of claim 24, wherein said polypeptide comprises the amino acid sequence of SEQ ID NO:4.

27. The isolated sel-10 polypeptide of claim 24, wherein said polypeptide comprises the amino acid sequence of SEQ ID NO:5.

28. The isolated sel-10 polypeptide of claim 24, wherein said polypeptide comprises the amino acid sequence of SEQ ID NO:6.

29. The isolated sel-10 polypeptide of claim 24, wherein said polypeptide comprises the amino acid sequence of SEQ ID NO:7.

30. The isolated sel-10 polypeptide of claim 24, wherein said polypeptide comprises the amino acid sequence of SEQ ID NO:8.

31. The isolated sel-10 polypeptide of claim 24, wherein said polypeptide comprises the amino acid sequence of SEQ ID NO:9.

32. The isolated sel-10 polypeptide of claim 24, wherein said polypeptide comprises the amino acid sequence of SEQ ID NO:10.

33. An isolated antibody that binds specifically to the sel-10 polypeptide of claim 24.

34. A cell line having altered A β processing that expresses any of the sel-10 isolated nucleic acid molecules of claim 1.

35. The cell line of claim 34, wherein said A β processing is increased.

36. The cell line of claim 34, wherein said A β processing is decreased.

37. The cell line of claim 34, wherein said cell line is 6myc-N-sel10/2.

38. The cell line of claim 34, wherein said cell line is 6myc-N-sel10/6.

39. A method for the identification of an agent capable of altering the ratio of A β_{1-40} / A β_{1-40} + A β_{1-42} produced in any of the cell lines of claims 34, 37, and 38, comprising the steps of:

- (a) obtaining a test culture and a control culture of said cell line;
- (b) contacting said test culture with a test agent;
- (c) measuring the levels of A β_{1-40} and A β_{1-42} produced by said test culture of step (b) and said control culture;
- (d) calculating the ratio of A β_{1-40} / A β_{1-40} + A β_{1-42} for said test culture and said control culture from the levels of A β_{1-40} and A β_{1-42} measured in step (c); and
- (e) comparing the ratio of A β_{1-40} / A β_{1-40} + A β_{1-42} measured for said test culture and said control culture in step (d);

whereby a determination that the ratio of A β_{1-40} / A β_{1-40} + A β_{1-42} for said test culture is higher or lower than ratio of A β_{1-40} / A β_{1-40} + A β_{1-42} for said control culture indicates that said test agent has altered the ratio of A β_{1-40} / A β_{1-40} + A β_{1-42} .

40. The method of claim 39, wherein said ratio of A β_{1-40} / A β_{1-40} + A β_{1-42} is increased by said test agent.

41. The method of claim 39, wherein said ratio of A β_{1-40} / A β_{1-40} + A β_{1-42} is decreased by said test agent.

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